

DISTRIBUTION AND BIOACCUMULATION OF MICROPOLLUTANTS IN AN ESTUARINE ECOSYSTEM

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Due to anthropogenic activities trace metals and organic micropollutants have been introduced in the aquatic ecosystem where they can accumulate and persist for many years. Those pollutants can become available for uptake by organisms and cause toxic effects. Persistent pollutants have the ability to be transferred through food chains and even become a threat for human health.

Bioaccumulation of chemical substances depends on two main factors. First, pollutants must be available for uptake by organisms. This bioavailability is strongly influenced by the chemical properties of the pollutant, by several physical and chemical processes and by environmental characteristics of the surrounding water and sediment, which can be highly variable in certain environmental systems like estuaries. These characteristics determine the chemical speciation and distribution of pollutants over the environmental compartments.

Secondly, bioaccumulation is influenced by the exposure route. Which exposure route is important for an aquatic organism is highly dependent on its physiology, habitat preference and feeding strategy.

This project aims to determine the exposure route most responsible for bioaccumulation in organisms with different feeding strategies and trophic level, and this for various pollutants. Therefore we conducted passive as well as active biomonitoring studies in the Scheldt Estuary. We related accumulated levels of micropollutants (trace metals, organic pollutants) in caged and free living animals to levels in environmental compartments (water, suspended particulate matter, pore water, sediment).